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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,800	04/15/2004	Tanya Jegeris Snyder	10030280-4	1463

7590 08/02/2006
AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

NHU, DAVID

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/826,800

Applicant(s)

SNYDER ET AL.

Examiner

David Nhu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 19, 21, 24, 25 and 231 is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20, 22, 26 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/461291.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTIONS

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 20, 22, 26, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (6,232,150 B1) in view of Weihs et al (6,736,942 B2).

Regarding claim 20, Lin, (see figures 11a-11b, 13, 14a-14b, col. 4, lines 10-50, col. 12, lines 12-67, col. 13, lines 1-55, col. 14, lines 15-59), teaches a device package, comprising: a first wafer (Si Substrate); a second wafer (Micropackage Substrate) (see figure 11a); and a perimeter (see figure 2b) of an intermetallic mixture interposed between the first wafer and the second wafer, the intermetallic mixture comprising materials from a reactive foil (aluminum microheater) and a bonding material, the intermetallic mixture being formed after an exothermic reaction of the reactive foil (see figures 13, 14a-14b, col. 4, lines 10-35).

Lin fails to teach the reactive foil that releases heat to the bonding material.

However, Weihs, (see figures 1, 5, col. 2, lines 25-46, col. 4, lines 8-67, col. 5, 6, lines 1-67, col. 8, lines 17-33), teaches the reactive foil that releases heat to the bonding material.

Regarding claim 22, Lin, (see figures 11a, 11b), also teaches the second wafer comprises a hole and a cavity.

Regarding claim 26, Lin, (see figures 11a-11b, 13, 14a-14b, col. 4, lines 10-50, col. 12, lines 12-67, col. 13, lines 1-55, col. 14, lines 15-59), teaches a device package, comprising: a wafer

(Si Substrate) having metal lines (metal interconnection) (see figures 11b) a device (MEMS); an intermetallic mixture interposed between the device and the metal lines, the intermetallic mixture comprising materials from a reactive foil (aluminum microheater) and a bonding material, the intermetallic mixture being formed after an exothermic reaction of the reactive foil (see figures 13, 14a-14b, col. 4, lines 10-35).

Lin fails to teach the reactive foil that releases heat to the bonding material.

However, Weihs, (see figures 1, 5, col. 2, lines 25-46, col. 4, lines 8-67, col. 5, 6, lines 1-67, col. 8, lines 17-33), teaches the reactive foil that releases heat to the bonding material.

Regarding claim 27, Lin, (see figures 11a, 11b), also teaches the device is MEMES.

It would have been obvious to one having ordinary skill in the art to apply the teachings of Weihs into the disclosed method of Lin as they are related to the same subject matter of fabricating a device package comprising a wafer having metal lines; a device; and an intermetallic mixture interposed between the device and the metal lines, the intermetallic mixture bonding the device and the metal lines, the intermetallic mixture comprising material from a reactive foil and a bonding material, the intermetallic mixture being formed after an exothermic reaction of the reactive foil that releases heat to the bonding material.

Allowable Subject Matter

4. Claim s 21, 23 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Lin and Weihs do not teaches a second intermetallic mixture interposed between the device and the first wafer, the second intermetallic mixture comprising materials from a second reactive foil and a second bonding material, the second intermetallic mixture being formed

after a second exothermic reaction of the second reactive foil; a second perimeter of a second intermetallic mixture interposed between the second and the third wafers, the second intermetallic mixture comprising materials from a second reactive foil and a second bonding material, the intermetallic mixture being formed after a second exothermic reaction of the second reactive foil.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Simon'419, Weihs'942 are cited as of interest.
6. A shortened statutory period for response to this action is set to expired 3 (three) months from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see 710.02 (b)).
7. Any inquiry concerning this communication on earlier communications from the examiner should be directed to David Nhu, (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM. The examiner's supervisor, David Nelms can be reached on (571)272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the patent application information retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Nhu



July 28, 2006